

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A photodetector having a heterojunction structure in an intrinsic region, comprising:
 - a lower cladding layer including an n-type doped region;
 - ~~an absorbing layer;~~
 - an upper cladding layer including a p-type doped region;
 - an absorbing layer located between the lower cladding layer and the upper cladding layer; andohmic electrodes connected to said lower cladding layer and said upper cladding layer, respectively
 - wherein said p-type doped region extends into said absorbing layer by a predetermined length and the intrinsic region is defined by an area between the n-type doped region and the p-type doped region.
2. (Original) The photodetector as claimed in claim 1,
 - wherein a distance between said n-type doped region and said p-type doped region is 0.6 to 1.2 μm .
3. (Original) The photodetector as claimed in claim 1,
 - Wherein said absorbing layer has a structure that a quantum well barrier and a quantum well layer are alternatively formed, and
 - Said p-type doped region extends into some portion of said quantum well barrier.
4. (Original) The photodetector as claimed in claim 1,
 - Wherein said the photodetector is one of a waveguide type PIN structure photodetector, a travelling wave photodetector, or an avalanche photodetector.